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REMARKS

Responsive to the office action mailed August 8, 2003, Applicants provide the following remarks. Although this response is being filed November 10, 2003, a petition for extension of time is not required since the due date of November 8, 2003 fell on a Saturday. Additionally, claims 14-20 have been added. No new claims fees are due for the additional claims presented herewith. Twenty (20) claims remain pending in the application: claims 1-20. Reconsideration of claims 1-13 in view of the remarks below and consideration of new claims 13-20 is respectfully requested.

Initially, Applicants acknowledge with appreciation the Examiner's willingness to meet telephonically in the Interview of November 4, 2003. By way of this amendment, Applicants have made a diligent effort to place the claims in condition for allowance. However, should there remain any outstanding issues that require adverse action, it is respectfully requested that the Examiner telephone the undersigned at (858) 552-1311 so that such issues may be resolved as expeditiously as possible.

Summary of Applicant Initiated Examiner Interview

1. Per 37 CFR § 133(b), the following is a brief summary of the Examiner interview conducted November 4, 2003 via telephone between Scott J. Menghini, Attorney of Record, and Examiners Harper and Santiago. No exhibits were provided or discussed. Independent claims 1 and 9 were discussed as they relate to U.S. Patent No. 5,340,997 (Kuo). Independent claims 1 and 9 were discussed as they relate to the proposed combination of U.S. Patent Nos. 5,811,926 (Novich) and 6,146,230 (Kim et al.). Applicant indicated that Kuo is a current collector and that the electron emission is not desired to contact a display screen of the display device. This distinction was acknowledged by the Examiner; thus, Applicant proposed adding a dependent claim to recite this distinction. Applicant further noted that the structure of the trench of Kuo is oriented for the purpose of causing an electron emission from the tip of the emitter and

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does not function to limit the spread of the electron emission; thus, the trench of Kuo does not provide field isolation between respective emitter lines, as recited in claims 1 and 9. It was agreed that this distinction be fully considered once presented in a formal response. Applicant also indicated that there is no motivation to combine Novich and Kim since modifying Novich to include the lines of Kim is inconsistent with the functionality of the spacer unit of Novich, such that the spacer unit would not function as intended. Examiners agreed that this argument should overcome the present rejection.

Rejections Under 35 U.S.C. § 112

1. Claim 11 stands rejected under 35 U.S.C. § 112, second paragraph, as failing to particularly point out and distinctly claim that which Applicants regard as the invention. Applicants have amended claim 11 as suggested; thus, it is respectfully submitted that the rejection is overcome and should be withdrawn.

Rejections Under 35 U.S.C. § 102

2. Claims 1, 2, 6, 8 and 12 stand rejected under 35 U.S.C. § 102(b), as being anticipated by U.S. Patent No. 5,340,997 (Kuo).

As discussed in the telephone interview, Kuo describes a field emission microelectronic device 100 to be used as a current controller, e.g., to supply a current to display elements of a flat panel display. Electrons are released from a single emitter 108 in response to the application of the appropriate voltage at the gate 106, the isolator 114 and the collector 112. As illustrated in FIGS. 2, 5, 8 and 10, the electrons have a trajectory from the emitter 108 to the collector 112. The isolators 114, 164, 230 and 308 create electrostatic enclosures 144, 194, 194 and 394, respectively, which help to limit the spread of electrons from the intended trajectories to confine the electrons in the vicinity of the electron source and the collector 112. Kuo teaches that it is desired to keep the

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electrons released from reaching the display screen of the device (see e.g., col. 1, lines 41-45; col. 5, lines 7-12 and 49-51; and col. 6, lines 51-57 of Kuo). This is because the microelectronic device of Kuo is a current controller, not a display emission element.

Additionally, as discussed in the telephone interview, the structure of the trench of Kuo is designed to locate the tip of the emitter 108 at a given tip lateral distance 122 and tip upper distance 126 relative to the gate 106 (see FIG. 1B), in order to release electrons from the tip of the emitter 108 with the appropriate voltages applied to the emitter and gate (see FIGS. 2, 5, 8 and 10). Any field isolation (as seen in FIGS. 2, 5, 8, and 10) is a result of the physical arrangement of the gate 106, the isolator 114 and the collector 112 and the application of the appropriate voltages thereto (in particular, the voltage applied to the isolator 114) in forming an electrostatic enclosure, not the result of the structure of the trench, i.e., the substrate 102 containing the emitter line 108. Thus, the trench of Kuo functions to cause an emission from the emitter, but does not limit the spread emission to isolate the emission from nearby emitter lines. In contrast, as recited in claim 1, the in-laid linear isolation barriers provide field isolation between respective ones of the electron emitter lines.

Furthermore, as discussed, Kuo describes a single emitter line 108, not multiple emitter lines. While it may be understood that a large-scale display device may include multiple devices of Kuo, Kuo does not describe how the devices 100 would be arranged relative to each other if there were multiple devices 100 in proximity. And, even if there were multiple devices, Kuo does not describe how field isolation would occur between electron emitter lines or what structure would function to isolate the emission of nearby emitter lines from each other. As such, Kuo does not describe or teach that the structure of the trench formed in the substrate would provide field isolation between electron emitter lines, as recited in claim 1.

Therefore, since Kuo does not disclose or suggest in-laid linear isolation barriers that provide field isolation between respective ones of the electron emitter

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lines, as is recited in claims 1, 2, 6, 8 and 12, Kuo does not disclose *every element* of claims 1, 2, 6, 8 and 12. Therefore, Kuo does not anticipate claims 1, 2, 6, 8 and 12. Thus, it is respectfully submitted that the rejection is overcome and should be withdrawn.

Furthermore, Applicants have presented new claims 16 and 17, which recite that the electron emission from the emitter lines is to a display screen of device, which is clearly not suggested by Kuo.

Rejections Under 35 U.S.C. § 103

3. Claim 9 stands rejected under 35 U.S.C. § 103(a), as being unpatentable over U.S. Patent No. 5,340,997 (Kuo).

As described above and as discussed in the telephone interview, while it may be understood that a large-scale display device may include multiple devices 100 of Kuo (thus, multiple emitters 108), Kuo does not describe how the devices 100 would be arranged if there were multiple devices 100 in proximity. And, even if there were multiple devices, Kuo does not describe how field isolation would occur between electron emitter lines or what structure would function to isolate the emission of nearby emitter lines from each other. As such, Kuo does not describe or teach that the structure of the trench formed in the substrate would provide field isolation between electron emitter lines. Thus, Kuo does not render obvious linear in-laid means for isolating linear electron fields emitted from adjacent emitter lines of a cathode substrate of the field emission display, as recited in claim 9. Therefore, it is respectfully submitted that the rejection is overcome and should be withdrawn.

4. Claims 1-3 and 6-13 stand rejected under 35 U.S.C. § 103(a), as being unpatentable over U.S. Patent No. 5,811,926 (Novich) in view of U.S. Patent No. 6,146,230 (Kim et al.).

As discussed in the telephone interview, there is no motivation to combine

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Novich and Kim since the proposed combination would render the prior art invention unsatisfactory for its intended purpose, which is prohibited by MPEP 2143.01.

Novich discloses an emission display panel having a spacer unit that provides mechanical support against atmospheric and other externally applied pressure, as well as aligns the emitter and display (see col. 8, lines 1-6). The spacer unit forms passageways that permit the passage of energy or other particles therethrough between the emitter and the display (col. 15, lines 9-12). Each emitter tip is positioned at an end of a given passageway (see col. 15, lines 12-14). The spacer unit is positioned to align the emitter tips with the corresponding passageways and corresponding portions of the display (see col. 21, line 67- col. 22, line 2).

By replacing the conventional emitter tips deposited in a circular apertures formed in the substrate of Novich with emitter lines (as recited in claims 1 and 9) such as described by Kim, the geometry of the spacer unit would block or interfere with electron emission toward the display, which can cause optical defects (see col. 1, lines 44-46 and 52-54), i.e., the passageways would not function as intended. On the other hand, if the geometry of the spacer unit were to be altered, the spacer unit would lose its ability to provide uniform mechanical support across the emitter region, which is necessary to provide low distortion, high brightness and uniform resolution (see col. 1, lines 45-46).

Thus, it is respectfully submitted that there is no motivation to combine Novich with Kim et al. Therefore, the rejection of claims 1-3 and 6-13 is overcome and should be withdrawn.

5. Claims 4 and 5 stand rejected under 35 U.S.C. § 103(a), as being unpatentable over U.S. Patent No. 5,340,997 (Kuo) in view of U.S. Patent No. 5,019,003 (Chason).

Claims 4 and 5 depend from claim 1. As presented above, Kuo does not

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disclose or suggest that suggest in-laid linear isolation barriers that provide field isolation between respective ones of the electron emitter lines. Chason teaches a field emission device having preformed emitter objects 201 held in position with a bonding agent 101 on a substrate 100, and provides no further teaching regarding in-laid isolation barriers. Thus, it is respectfully submitted that the combination of Kuo and Chason does not render claims 4 and 5 obvious and that the rejection should be withdrawn.

New Claims

4. Newly submitted claims 13-20 are believed to be allowable because they are directed to that which is not shown or suggested in the prior art. Support for new claim 14 may be found, inter alia, at page 11, lines 29-30 and in FIG. 8. Support for new claims 15 and 18 can be found, inter alia, at page 8, line 29 through page 9, line 3. Support for new claims 16-17 and 19-20 can be found, inter alia, at page 12, lines 7-10 and page 17, lines 6-12.

Information Disclosure Statements

5. Applicant's thank the Examiner for returning initialed IDS forms for several information disclosure statements filed. However, Applicants request that the Examiner consider and the references provided in the electronic information disclosure statements filed September 11, 2002, December 18, 2002 and August 29, 2003 and provide Applicants with an initialed copy indicating that the references were considered. Please contact the undersigned at (858) 552-1311 with any questions or if an additional copy of the filed information disclosure statements with acknowledgement receipts is required.

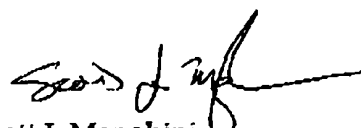
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CONCLUSION

Applicants submit that the above amendments and remarks place the pending claims in a condition for allowance. Therefore, a Notice of Allowance is respectfully requested. By way of this amendment, Applicants have made a diligent effort to place the claims in condition for allowance. However, should there remain any outstanding issues that require adverse action, it is respectfully requested that the Examiner telephone the undersigned at (858) 552-1311 so that such issues may be resolved as expeditiously as possible.

Respectfully submitted,

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